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REAMES CAVE.

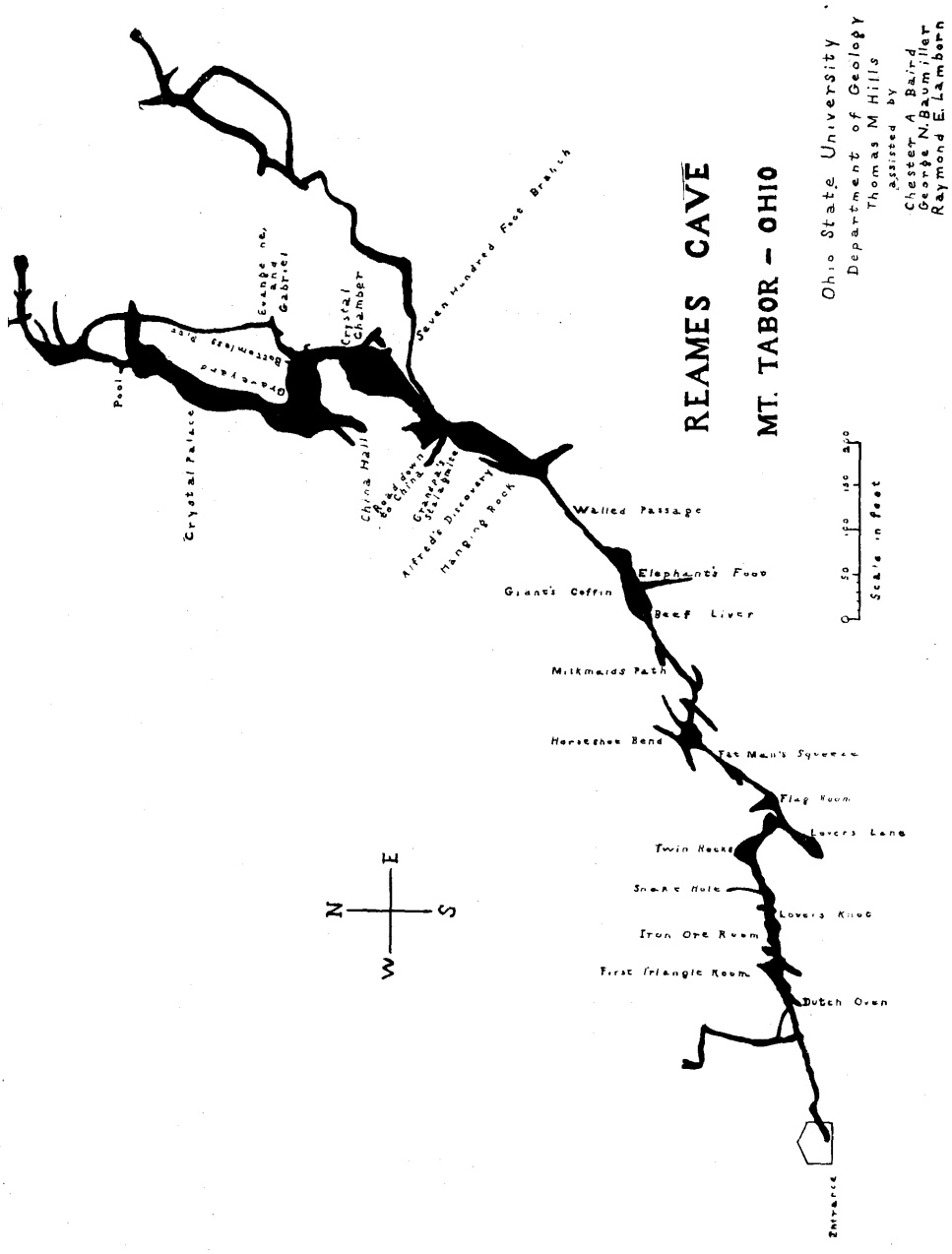
THOMAS M. HILLS.

Reames Cave is also called Mount Tabor Cave, because of its location in Mount Tabor. It is on the Reames farm and owned by the Reames family, who wish it called by their name. For these reasons the title name was adopted.

The Cave lies along the northern border of Champaign county, in the west central part of Ohio. It can be reached most easily, by way of the Big Four Railroad or the Ohio Electric Railway, from West Liberty, a small town four and a half miles to the northwest.

Mount Tabor is an elevation 1278 feet above sea level along the eastern side of the Mad River valley. It lies between that river and the prominent moraine of the Late Wisconsin ice sheet that forms the eastern side of the valley from Bellefontaine southward.

The Cave is located at the northern end of a ridge which is partly limestone and partly glacial drift. This ridge is a mile and a half long, a half mile wide and eighty feet above the stream beds to the east and west of it. It is of topographic importance because somewhat isolated from the high morainal ridge to the east which would otherwise overshadow it. This isolation is partly due to the present drainage of the region and partly to preglacial erosion.


REAMES CAVE
MT. TABOR - OHIO
Ohio State University
Department of Geology
Thomas M Hills
assisted by
Chester A Baird
George N. Baumiller
Raymond E. Lamborn
Crystal Palace
Pool
Crystal Chamber
Seven Hundred Foot Branch
China Hall
Walled Passage
Elephant's Foot
Giant's Coffin
Beef Liver
Milkmaids Path
Horseshoe Bend
Fat Man's Squeeze
Flag Room
Lovers Lane
Twin Rocks
Snake Hole
Lovers Knot
Iron Ore Room
First Triangle Room
Dutch Oven
Entrance
N
E
S
W
50
100
200
Scale in Feet

The drainage is into the Mad River valley and is mostly surface run-off except in the vicinity of Mount Tabor, near both ends of which and to the southward are depressions. There is no doubt that some of these are sinks. Some, however, may be kettle holes associated with the near presence of the broad moraine. The abrupt ending of some small streams in ponds near Mount Tabor, shows that there is underground drainage in its immediate vicinity.

Geologically, the cave is located in the Columbus limestone, a small outlier of which forms Mount Tabor. This is a small edition of a similar situation in the double pointed hill near Bellefontaine.

Several small quarries have been opened near the base of the Mount, for local use. In a specimen from one of these Miss Rose Gormley identified the following fauna: Atrypa reticularis, Atrypa spinosa (?), Cyrtina hamiltonensis, Leptæna rhomboidalis, Rhipidomella vanuxemi, Spirifer divaricatus (?), Stropheodonta hemispherica, Zaphrentis cornicula (?), Dalmanites calypso.

This fauna, together with the lithologic character of the limestone, and the fact that at the cave entrance is exposed fifteen feet of Ohio shale immediately above the limestone, leaves no doubt as to its age. The Ohio shale at the entrance is the only known occurrence of it on the hill. It seems to have been protected from ice erosion, because it occupied the bottom of a shallow sink, which subsequently enlarged and deepened to form the present cave entrance.

Glacial drift covers the southern end of Mount Tabor in a train that stretches out from the limestone core. The northern end of this core was left exposed by the ice. It has the steep slope to the north and the drift to the lee characteristic of ice shaped hills.

Reames Cave is approximately 1800 feet long. Its general form is that of the letter *Y*, the entrance being at the base of the letter and the fork 1100 feet from it. The passages run in a northeast direction up to the fork, where one continues along the same line and the other branches off to the north. (See map).

The width of the accessible galleries varies considerably. The maximum is fifty feet. Where this wide the height of all but a small passage may be reduced from a maximum of twenty-five feet to three feet or less. The wider places are

usually at the intersection of two joint planes. This is not true of the northern arm. Its rooms are the largest in the cave and occur along a single joint plane.

Reames Cave is one of the largest if not the largest in Ohio. It owes its size to the extent of its narrow chambers, rather than to their width or height. These chambers are all on one level or nearly so. The floor at the entrance is thirty feet below the ground surface. It descends gradually to the northeastward, but so gradually that at the extreme end of the cave

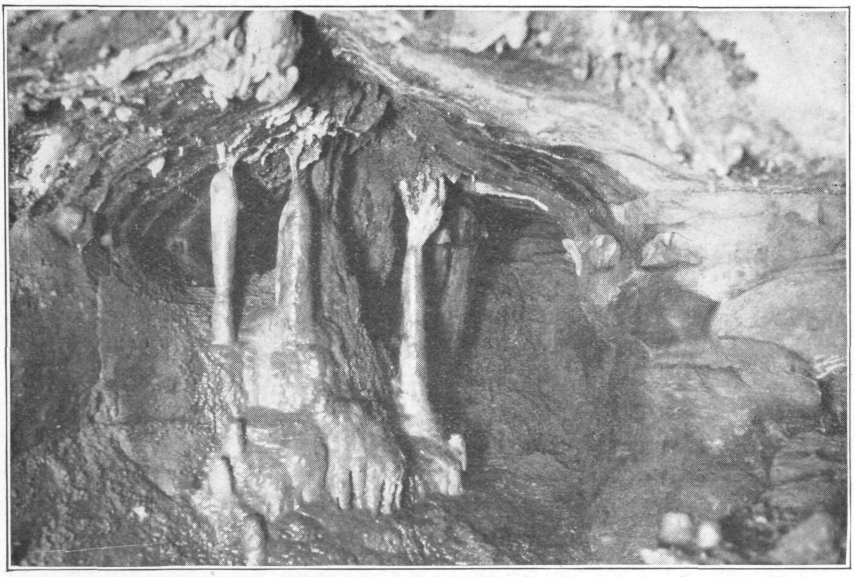


Figure 2. The Crystal Chamber with columns of iron oxide and calcium carbonate.

a descent sixty-five feet below the surface is unnoticed. Most of this descent is along the eastern arm of the *Y*.

At the extreme end of both branches the floor of the cave is quite muddy, due to the constant dripping from the roof, at least in part. This is due to the fact that the cave in its northeasterly course passes beyond the limit of the Mount Tabor hill and is partly under the valley to the east of it. While the surface drainage into this valley from Mount Tabor carries off most of the water, enough descends through the mantle rock to give an abundant supply for solution and deposition in the cave.

The rooms are small and narrow near the entrance, but increase in size toward the inner end. They follow a northeast-southwest joint plane which can be seen along the roof. Figure 2 shows one of these joint planes. The "Crystal Chamber" pictured is not the main gallery, but runs at right angles to it.

Solution has widened the joint plane along layers that are decidedly saccharoidal in texture. This expanded area is usually near the roof of the cave. The cross-section thus formed resembles a plus sign, the lower end of which is partly filled with residual fragments and sticky clay. At certain places solution along the bedding planes far surpasses that in the other directions and the larger rooms such as the Crystal Chamber (Fig. 2) and the Graveyard (Fig. 3) are produced.

The exact location of the cave among the zones of the Columbus limestone can not be stated with certainty, but it is thought to be near the base of the formation, probably in zones *B* and *C* of Stauffer.* The walls are coated at most places with deposits, but the abundance of corals in the roof, indicating zone *C*, and the saccharoidal layers below, which in the upper part contain many cherty nodules, with a general scarcity of fossils, and the massive character of the strata agree with the description of zone *B*.

The concretions in the saccharoidal layers stand out prominently along the upper part of the walls of the cave. They deserve special mention because of the suggestive names that have been given them, such as "Beef's Heart" and the "Ham." In size they vary from a few inches to several feet in diameter.

The deposits on the walls and roof are of two kinds, calcium carbonate and iron oxide. These have been and are being deposited contemporaneously. The walls are coated with alternating layers of them. At some places, as in the "Flag Room" these are arranged in vertical stripes, while at others the calcite is the present outside coating which gives the white color of the "Milky Way" and other similar passages.

One peculiarity of the iron deposits is the arrangement into a cell-like structure resembling a honeycomb, or better the leaf scars of a Lepidodenron. The calcite forms the comb and the iron oxide the honey of the first illustration. This can be seen imperfectly, to the right of the stalactites in the picture of the

*Geological Survey of Ohio, Bulletin 10, pp. 36–37.

Crystal Chamber, Figure 2. It occurs on the walls and roof of the cave at many places, resembling a structure of organic origin, though that does not seem possible. No explanation is offered. In Figure 2 stalactites of iron oxide, the darker

Figure 3. "Evangeline and Gabriel."

columns in the inner part of the recess, and calcite, the lighter columns, shows the close association of these two minerals. The change in the diameter near the middle of the column at the left in the same illustration, is characteristic of many

of them, especially the larger ones. It occurs in those composed of both minerals and those of only one. A constriction should occur where stalactite and stalagmite meet. Most of the large stalactites show two however. The question might be raised whether an increased water supply would cause more rapid deposition. This might be brought about by glaciation or a number of other ways. Figure 3 of the stalactite and stalagmite "Evangeline and Gabriel," two of the largest columns in the cave are without any suggestion of constriction. They are not, however, in the main cave, but off at the extreme end of a narrow side branch which is quite dry at present and may have been so for a long time.

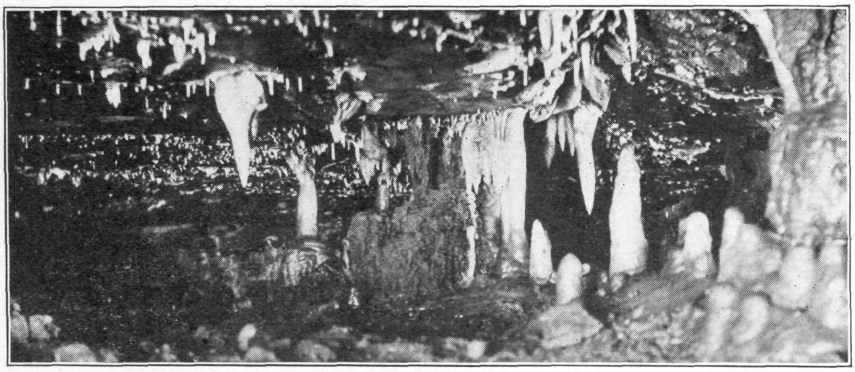


Figure 4. "The Graveyard."

The smaller stalactites are simple in form. Hundreds of them, about the size of a cigarette, are hollow thin walled tubes, that hang from the roof in the wider part of the cave. They are still covered and filled with water and probably started their growth at a not distant past. The larger ones are from three to five feet long. Figure 4 of the "Graveyard" is a good illustration of the abundance of the small ones.

The time when the cave began to be formed is unknown. The only evidence as to its age is derived from comparing it with other solution cavities in the Columbus limestone, known to be pre-glacial.* These are so much smaller that it seems probable the cave was in existence long before glaciation.

The cave had no surface opening until in August, 1897, when the ground sunk at the present entrance.

*Hubbard, Geological Survey of Ohio, Bulletin 14, p. 63.